Claims 1-19 are now pending in the application. Claims 5 and 12-15 are currently amended. There are no new or cancelled claims. Support for the foregoing amendment can be found throughout the specification, drawings, and claims as originally filed. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 101

Claims 5 and 12-15 stand rejected under 35 U.S.C. §101 because they are directed to functional descriptive media not embedded in a computer readable medium. This rejection is respectfully traversed. Applicant has amended these claims according to the Examiner's suggestions. Therefore, reconsideration and withdrawal of this objection are respectfully requested.

REJECTION UNDER 35 U.S.C. § 102

Claims 6, 7, 9, 10, 12, 13, and 15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Rosen, et al., "Multiprotocol Label Switching Architecture," Internet Engineering Task Force, July 2000 ("Rosen"). This rejection is respectfully traversed.

The present invention, according to the initially-filed independent Claims 6, 9, 12, and 15, has novel features of maintaining lists, in which the receiving-side IP address corresponds to <u>identifiers for showing output interfaces of output edge routers</u>, in input edge routers; and <u>adding the identifiers</u> corresponding to a receiving-side IP address <u>to</u>

the IP packets by the input edge routers when IP packets are transmitted (emphasis added).

The present invention achieves a non-obvious effect of reducing the number of paths in a core network by increasing the speed with respect to a path, and improving the scalability. (Support for these non-obvious effects is found in lines 13 to 22 on page 14 of the initially-filed English specification.)

In contrast, Rosen does not disclose or indicate these novel features because Rosen merely discloses in the second paragraph of page 2 that "[t]his technique allows the egress to do a single lookup, and also requires only a single lookup by the penultimate node." In this configuration, a process of an IP address lookup at the egress still remains to be conducted. Therefore, Rosen fails to teach or suggest the aforementioned non-obvious effect of the present invention.

The present invention can eliminate such an IP address lookup and reduce operations since an output interface can be specified by using a fixed length of label lookup at an output edge router that corresponds to an Egress of Rosen.

In conclusion, Applicant maintains that the initially-filed independent Claims 6, 9, 12, and 15, and claims depending thereon, should be allowed in view of Rosen. Accordingly, Applicant respectfully requests reconsideration and withdrawal of this rejection.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-3 and 16-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Xu, et al., "A BGP/GMPLS Solution for Inter-Domain Optical

Networking," ETF Draft, June 2002 ("Xu") in view of Rajagopalan, et al., "IP over Optical Networks: A Framework – Second Draft Version," 6 June 2002, Internet Engineering Task Force, pp. 1-41 ("Rajagopalan"). This rejection is respectfully traversed.

The present invention, according to the initially-filed independent Claims 1 and 16, includes the novel feature that each optical edge router has both of the following: an optical network control instance for maintaining topology information in an optical network and switching/signaling optical paths; and an IP network instance for maintaining a routing table in each of external IP networks and activating routing protocols between the external IP networks and the IP network instance.

The present invention achieves a non-obvious effect that an address space in the external IP network and an address space used for controlling the optical network are separated; thus, it is possible to contain a plurality of IP networks in a single optical network. In addition, since an edge router has both of the instances, it is possible to control the optical paths integrally by using information about the external IP networks; that is, the multi-layer cooperation is available. (Support for these non-obvious effects is found in the last paragraph on page 11 of the initially-filed English specification.)

Regarding Xu, Applicant asserts that the routers indicated by A2 and B2 in Xu maintain only information associated with the interface of a router which would be feasibly connected by the routers A2 and B2, i.e., Client Access Point (CAP) information. For example, a request for establishing an optical path is transferred from the router A2; and an Ingress BGP speaker (X1, etc., in FIG. 1 of Xu) decides a BGP Next Hop, i.e., a path in an optical network (see item 8, in page 7 of Xu). In other

words, the role of deciding the path in the optical network belongs to the BNE including the X1, etc.

Section 5.2 of Rajagopalan discloses a single instance model obtained by integrating information associated with an IP network with information associated with an optical network. This model is distinguished from the aforementioned novel feature of the present invention.

In addition, a peer model, an overlay model, and an augmented model shown in Section 6 of Rajagopalan are also irrelevant to the aforementioned feature of the present invention.

In conclusion, since the combination of Xu and Rajagopalan does not have the aforementioned novel feature of the present invention, it fails to teach or suggest the aforementioned non-obvious effect of ensuring multi-layer cooperation. Therefore, Applicant asserts that the initially-filed independent Claims 1 and 16 should be allowed in view of these citations.

Regarding dependent Claims 2 and 3, Applicant maintains that these claims should be allowed due at least to their dependency on Claim 1.

Moreover, more specifically, Section 6.2.2 of Rajagopalan discloses two domains prepared separately for an IP network and an optical network, between which routing information is exchanged by using BGP.

In contrast, Claim 2 of the present application recites "the routing protocols for exchanging path information among the IP networks" (emphasis added). The object of the present invention using the routing protocol is different from that of Rajagopalan.

In addition, regarding the overlay model disclosed in Section 6.1.2. and Section 6.2.3., Rajagopalan indicates "...topology distribution...would have to be defined for the optical domain." In this context, an optical domain is believed to be equivalent to the optical network used in the present invention, and the topology distribution conducted in Rajagopalan is irrelevant to the aforementioned recitation of Claim 2 of the present application.

From the above analysis, Applicant asserts that Claim 2 is not obvious from the combination of references since Rajagopalan is based on a different network model from that of the present invention.

Furthermore, as previously explained, an object of using a BGP in the present invention according to Claim 3 is different from that of Rajagopalan. Consequently, Applicant maintains that Claim 3 is not obvious from the combination of the citations. Therefore, Applicant asserts that the initially-filed independent Claims 1 and 16 should be allowed in view of these citations. Accordingly, Applicant requests reconsideration and withdrawal of the rejection.

Claims 4-5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Xu in view of Rajagopalan as applied to claim 1 and further in view of Jagannath (U.S. Pat. No. 6,483,833; "Jagannath"). This rejection is respectfully traversed.

Jagannath discloses a method for distributing label information used for activating an MPLS on a single IP network (not on a plurality of IP networks) by using a routing protocol called OSPF which is modified to expand its function capable of distributing label information in place of a conventional standard label-distributing

protocol. Therefore, a routing table and a label table, each used in the method of Jagannath, maintains information associated with a single IP network since the method of Jagannath relates to a single IP network. Consequently, each network used in the method of Jagannath is capable of maintaining one instance, i.e., one routing table.

In contrast, the present invention uses two networks, including an optical network and an IP network, and each network must have an instance. Essentially, in the present invention, topology information used for the optical network is one of the instances, and a routing table used in the IP network is the other.

The present invention, according to Claims 4 and 5, is characterized by an edge router maintaining two instances which are used for the optical network and the IP network, respectively, which can achieve multi-layer cooperation.

Applicant strongly asserts that the present invention using two instances corresponding to two networks cannot be obvious from Jagannath merely relating the single IP network. Therefore, it is respectfully submitted that Claims 4-5 define patentable subject matter over this combination of references. Accordingly, Applicant respectfully requests reconsideration and withdrawal of this rejection.

Claims 8, 11, and 14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Rosen as applied to claims 6 and 12 and further in view of Braun, et al., "Management of quality of service enabled VPNs," Communications Magazine, IEEE, vol. 39, no. 5, pp. 90-98, May 2001 ("Braun"). This rejection is respectfully traversed.

Braun discloses correlation of an IP address and a label (in VPN). However, Braun does not disclose or indicate a novel feature that correspondence information with respect to the receiving-side IP address and its corresponding identifiers are exchanged among the edge routers by control signals.

More specifically, Braun discloses making correspondence information with respect to an IP address and a VPN and transmitting the obtained correspondence information by using a BGP method. This feature is irrelevant to the aforementioned novel feature of the present invention.

In addition, in view of the object of the present invention according to Claim 6, in an attempt to reduce the number of paths in a core network by increasing the speed with respect to a path, and improving the scalability, an identifier indicating an output edge router alone does not suffice this object; therefore, the present invention must have the identifier showing output interfaces of output edge routers. Furthermore, the granularity or the meaning of the identifier used in Braun is different from that of the present invention since Braun aims to identify a VPN.

In view of these differences, Applicant maintains that the citations not disclosing the aforementioned novel feature of the present invention cannot achieve the non-obvious effect of the present invention. Therefore, it is respectfully submitted that Claims 8, 11, and 14 define patentable subject matter over Rosen and Braun. Accordingly, Applicant respectfully requests reconsideration and withdrawal of this rejection.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: <u>February 27, 2009</u>

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